

SWINE HEALTH

Title: Development of an Avirulent Vaccine Strain of *Streptococcus suis*
NPB #99-066

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Abstract

The gene encoding the hemolysin of *Streptococcus suis*, suilysin, has been cloned and a deletion derivative of the gene created which lacks hemolytic activity. The mutant form of the gene was then tagged with an spectinomycin resistance marker. The inactivated gene was cloned into a Staphylococcus-based shuttle plasmid and introduced into *Staphylococcus hyicus*. For introduction of the deleted allele of the suilysin gene into *S. suis*, a co-mobilization system was set up. The *S. hyicus* donor strain was mixed with a virulent type 2 strain of *S. suis*. The bacterial mixture was collected on 0.45µm nitrocellulose filters which were then overlaid onto blood agar plates. Following incubation to allow the mating to occur between the donor and recipient strains, the cells were harvested and plated on media containing spectinomycin. Antibiotic resistant and non-hemolytic colonies have been obtained. These strains will be examined to ensure that the inactivation of the suilysin gene is correct. Now that this mutation system has been shown to work, we will repeat the process with a heavy metal resistance marker in place of the spectinomycin resistance cassette. The resulting suilysin-negative mutant will then be evaluated for virulence properties and, if attenuated, will be tested as a possible vaccine strain.

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